

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1-28. (canceled)

29. (Currently Amended) A process for the preparation of an insertion compound of an alkali metal ~~in which the~~ comprising following successive stages are carried out steps:

a) an organic complex of a transition metal or of a mixture of transition metals M in an oxidation state of greater than 2 is brought into contact with an alkali metal A in the ionic form and with an entity of formula $H_b(XO_4)$, where X is chosen from ~~the group consisting of~~ Si, S, Al, P, Ge, As [[or]] ~~and~~ Mo, and b has a value from 0 to 5, in a liquid medium in a closed chamber; the chamber is brought to a temperature T which makes possible the decomposition of the organic complex in ~~the~~ the said liquid medium; ~~and~~

b) the temperature and the pressure in the chamber are brought back to ambient temperature and atmospheric pressure and the insertion compound of an alkali metal of formula $AMXO_4$, in which M is in the +2 oxidation state, is recovered.

30. (Currently Amended) The process according to claim 29, in which the metal M is in an oxidation state of 3 to 5, ~~preferably in an oxidation state equal to 3~~.

31. (Currently Amended) The process according to claim 29, in which M is chosen from transition metals, ~~such as Mn, Fe, Ni, Co and their mixtures~~.

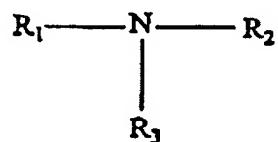
32. (Previously Presented) The process according to claim 29, in which the alkali metal A is chosen from Li and Na.

33. (Previously Presented) The process according to claim 29, in which the alkali metal A in the ionic form is in the form of an alkali metal salt $A_aH_b(XO_4)$ where a has a value from 1 to 5.

34. (Previously Presented) The process according to claim 29, in which X is P.

35. (Previously Presented) The process according to claim 32, in which the alkali metal salt is Li₂HPO₄.

36. (Previously Presented) The process according to claim 29, in which the organic complex comprises the metal M bonded to an organic ligand chosen from the compounds of formula:



in which at least one from R₁, R₂ and R₃ comprises at least one oxygen atom.

37. (Currently Amended) The process according to claim 36, in which, in the organic ligand, R₁, R₂ and R₃ are chosen independently from carboxy (1-4C) alkyl radicals, such as carboxymethyl and carboxyethyl.

38. (Previously Presented) The process according to claim 37, in which the organic ligand is nitrilotriacetic acid N(CH₂CO₂H)₃ or ethylenedioxyethylenedinitriletetraacetic acid (EGTA).

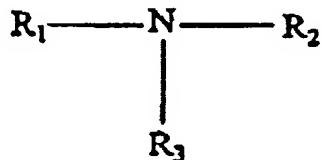
39. (Currently Amended) The process according to claim 29, in which the liquid medium, in stage a), is chosen from water; organic solvents, such as liquid alkanes, for example dodecane, or tributyl phosphate (TBP); and their mixtures.

40. (Previously Presented) The process according to claim 29, in which, on conclusion of stage b), the compound is washed and then dried, optionally under vacuum.

41. (Previously Presented) The process according to claim 29, in which the organic complex is prepared in a stage prior to stage a) by bringing a salt of the metal M, in the oxidation

state greater than 2, into contact with an organic compound in a liquid medium.

42. (Previously Presented) The process according to claim 41, in which the organic compound is chosen from the compounds of formula:



in which at least one from R₁, R₂ and R₃ comprises at least one oxygen atom.

43. (Currently Amended) The process according to claim 42, in which, in the organic compound, R₁, R₂ and R₃ are chosen independently from carboxy (1-4C) alkyl radicals, such as carboxymethyl and carboxyethyl.

44. (Previously Presented) The process according to claim 43, in which the organic compound is nitrilotriacetic acid N(CH₂CO₂H)₃ or ethylenedioxyethylenedinitriletetraacetic acid.

45. (Currently Amended) The process according to claim 41, in which the salt of the metal M is chosen from the group consisting of nitrates, sulphates, chlorides, acetates, citrates [[or]] and carboxylates of the metal M.

46. (Currently Amended) The process according to claim 41, in which the liquid medium is chosen from water; organic solvents, such as liquid alkanes, for example dodecane, or tributyl phosphate (TBP); and their mixtures.

47. (Currently Amended) An insertion compound of an alkali metal of formula AM (XO₄) where A is chosen from alkali metals, X is chosen from the group consisting of Si, S, Al, P, Ge, As and Mo, and M is in the +2 oxidation state, characterized in that it exhibits a content of metal M as at oxidation state of greater than 2, for example of metal M (III), of less than 5% by weight, preferably of less than 1% by weight.

48. (Previously Presented) The compound according to claim 47, which is present in the form of particles or grains.

49. (Previously Presented) The compound according to claim 48, in which the particles have the shape of cylinders, cubes or polyhedra.

50. (Previously Presented) The compound according to claims 48, in which the particles exhibit a fully controlled, homogeneous, morphology.

51. (Currently Amended) The compound according to claims 48, in which the deviation from the mean value of the size of the particles is less than 20%, ~~preferably less than 10%, more preferably less than 1%~~.

52. (Currently Amended) An electrode active material comprising one or more compounds according to claim 47 ~~or prepared by the process according to claim 29~~, optionally in combination with one or more other active compounds, ~~such as selected from the group consisting of LiCoO₂, LiNiO₂, manganese oxides, in particular with the spinel structure and Li_{1+x}Mn_{2-x}O₄ (with 0 ≤ x ≤ 0.33), for example LiMn₂O₄; compounds of the family isotypic with olivine, such as Li_{1-x}FePO₄, for example LiFePO₄; compounds with the Nasicon structure and the insertion materials of lithium of the orthosilicate type.~~

53. (Previously Presented) A positive electrode comprising the active material according to claim 52.

54. (Previously Presented) A battery comprising the electrode according to claim 53.

55. (Previously Presented) The battery according to claim 54, comprising a negative electrode based on Li₄Ti₅O₁₂.

56. (Currently Amended) An electrochromic device comprising the compound according to claim 47 ~~or prepared by the process according to claim 29~~.

57. (New) The process according to claim 30, in which the metal M is in an oxidation state of 3.

58. (New) The process according to claim 31, in which the transition materials are Mn, Fe, Ni, Co, or a mixture thereof.

59. (New) The process according to claim 37, in which, the carboxy (1-4C) alkyl radicals are carboxymethyl or carboxyethyl.

60. (New) The process according to claim 39, in which the organic solvents are liquid alkanes.

61. (New) The process according to claim 60, in which the liquid alkanes are dodecane or tributyl phosphate (TBP).

62. (New) The process according to claim 43, in which the carboxy (1-4C) alkyl radicals are carboxymethyl or carboxyethyl.

63. (New) The process according to claim 46, in which the organic solvents are liquid alkanes.

64. (New) The process according to claim 63, in which the liquid alkanes are dodecane or tributyl phosphate (TBP).

65. (New) The compound according to claims 51, in which the deviation from the mean value of the size of the particles is less than 10%.

66. (New) The compound according to claims 65, in which the deviation from the mean value of the size of the particles is less than 1%.

67. (New) The electrode active material according to claim 52, in which the compounds of the family isotopic with olivine are $\text{Li}_{1-x}\text{FePO}_4$.

68. (New) The electrode active material according to claim 67, in which $\text{Li}_{1+x}\text{Mn}_{2-x}\text{O}_4$ (with $0 \leq x \leq 0.33$) is LiMn_2O_4 , and $\text{Li}_{1-x}\text{FePO}_4$ is LiFePO_4 .

69. (New) An electrode active material prepared by the process according to claim 29, optionally in combination with one or more other active compounds, selected from the group consisting of LiCoO_2 , LiNiO_2 , manganese oxides, and $\text{Li}_{1+x}\text{Mn}_{2-x}\text{O}_4$ (with $0 \leq x \leq 0.33$), compounds of the family isotypic with olivine, compounds with the Nasicon structure and the insertion materials of lithium of the orthosilicate type.

70. (New) A positive electrode comprising the active material according to claim 69.

71. (New) A battery comprising the electrode according to claim 70.

72. (New) The battery according to claim 71, comprising a negative electrode based on $\text{Li}_4\text{Ti}_5\text{O}_{12}$.

73. (New) The electrode active material according to claim 69, in which the compounds of the family isotypic with olivine are $\text{Li}_{1-x}\text{FePO}_4$.

72. (New) The electrode active material according to claim 73, in which $\text{Li}_{1+x}\text{Mn}_{2-x}\text{O}_4$ (with $0 \leq x \leq 0.33$) is LiMn_2O_4 , and $\text{Li}_{1-x}\text{FePO}_4$ is LiFePO_4 .

75. (New) An electrochromic device prepared by the process according to claim 29.